

Four new Species of *Glycaspis* Taylor (Homoptera: Spondyliaspidae) from some endangered Species of *Eucalyptus*

K. M. MOORE

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Some rare and endangered species of *Eucalyptus* LHerit. have been examined for associated species of Psylloidea, and four new species of *Glycaspis* Taylor are described and figured.

K. M. Moore, Statue Bay, Yeppoon, Australia 4703; manuscript received 6 March 1984, accepted for publication 20 February 1985.

INTRODUCTION

Of more than 500 known species of *Eucalyptus* LHerit., nearly one quarter are recorded as being at some risk of survival (Pryor, 1981). Known and possible causes contributing to these risks are discussed by Pryor, who lists 125 species considered to be at present or potentially threatened.

Because of their restricted occurrences, these rare eucalypt species generally are not readily located in the field, so that precise and detailed locality information is essential for an examination of the species as possible psyllid hosts.

Eucalyptus pumila Cambage, found only on an area of c. 20 ha near Cessnock, New South Wales (Baur, 1981: 59), is probably the extreme example of restricted eucalypt distribution.

RESULTS

Four eucalypt species in Queensland and three in New South Wales were sampled with a hand-net to determine possible Psylloidea associations. The species examined were *E. argophloia* Blakely, *E. bakeri* Maiden, *E. conglomerata* Maiden & Blakely, *E. largeana* Blakely & de Beuzeville, *E. rummeryi* Maiden, *E. scoparia* Maiden and *E. tetrapleura* L. Johnson.

From each of those eucalypt species, Psylloidea of genera other than *Glycaspis* Taylor were collected for studies by psyllid taxonomist K. L. Taylor, and the species of *Glycaspis* obtained are the subject of this paper.

A new gall-forming species and a new round lerp-forming species of *Glycaspis* was obtained from *E. conglomerata*. The first species to be recorded as constructing square (and rectangular) lerps was obtained from *E. bakeri*, and a new species constructing round to oval lerps was obtained from *E. argophloia*.

These four *Glycaspis* species are described and illustrated, and all specimens are in the Australian National Insect Collection, CSIRO, Canberra.

Of the relatively rare eucalypts listed by Pryor, the following have been previously examined for *Glycaspis* species (Moore, 1961, 1970a, 1970b, 1977, 1984), an asterisk denoting a *Glycaspis* host: — *E. alpina* Lindl., *E. brachyandra** F. Muell., *E. caesia* Benth., *E. cneorifolia* DC., *E. comitae-vallis** Maiden, *E. cosmophylla* F. Muell., *E. curtisii* Blakely & White, *E. diptera* Andrews, *E. dongarraensis** Maiden & Blakely, *E. dunnii** Maiden, *E. erythrocorys* F. Muell., *E. fasciculosa** F. Muell., *E. ficifolia* F. Muell., *E. goniantha* Turcz., *E. grossa* F. Muell. ex Benth., *E. guilfoylei* Maiden, *E. howittiana** F. Muell., *E. jacksonii*

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Maiden, *E. mckieana** Blakely, *E. nitens** Maiden, *E. pachyloma* Benth. and *E. raveretiana** F. Muell.

DESCRIPTIONS AND NOTES

Glycaspis (Synglycaspis) surculina sp.n.

Figs 1-3

Types. Holotype ♂ on slide labelled Beerwah, Qld, Forestry Scientific Area, 16 ix 1983, K. M. Moore, *E. conglomerata*, ex gall. Paratypes, 2 slides of single wholemount males; 1 ♂, 1 ♀ in 90% ethanol in tube. All with same label data.

General colour: males pale yellow, claspers darker yellow, fore wings suffused pale yellow on costal one third; females deeper yellow than males, fore wings suffused deep yellow.

Claspers and aedeagus as in Figs 1-3. Length of aedeagus 0.297-0.330mm (3 specimens). Galls: nymphs form relatively thin-walled galls variable in shape, pale to deep green with or without red coloration, only on young shoots.

Notes. The phyletic position of *G. surculina* is in the *brunosa* group (Moore, 1983). The species appears to be nearest to *G. encystis* Moore but differs in the following characters: the median dorsal edge of the aedeagus bears an undulation which is lacking in other gall-formers except *G. belua* Moore; distal end of aedeagus ovoid rather than rounded, and usually below the general dorsal aspect; claspers strongly sclerotized along anterior and posterior edges, antero-distal edge flattened, strong inner spine less curved and obliquely truncate apically, pegs posterior to spine stouter and more numerous.

Etymology. The Latin noun *surculus* = a young shoot, with the suffix *-ina* = belonging to.

Glycaspis (Synglycaspis) wallumaris sp.n.

Figs 4-6

Types. Holotype ♂ on slide labelled Beerwah, Qld, Forestry Scientific Area, 16 ix 1983, K. M. Moore, *E. conglomerata*, round lerps. Paratypes, 1 ♀, 1 nymph in 90% ethanol in tube with same label data.

General colour: male pale yellow with few dark markings; females orange with dark markings more extensive, abdomen suffused red. Claspers and aedeagus as in Figs 4-6. Length of aedeagus 0.248mm. (1 specimen). Lerps round.

Notes. The phyletic position of *G. wallumaris* is in the *endasa* group. The species appears to be nearest to *G. particeps* Moore from which it differs in the following characters: the median dorsal edge of the aedeagus protrudes further and more sharply above the general dorsal line, both the dorsal and ventral edges are more extensively and heavily sclerotized, and the distal end is more rounded; claspers are narrower distally, posterior edge straighter, anterior edge more clearly defined and more gradually tapering to the well-defined basal 'foot', anterior and posterior edges and their bases more heavily sclerotized, external setae more sparse.

Etymology. The Latinized adjective indicates the type of environment known locally as 'wallum', with the suffix *-aris* = pertaining to.

Maiden, *E. mckieana** Blakely, *E. nitens** Maiden, *E. pachyloma* Benth. and *E. raveretiana** F. Muell.

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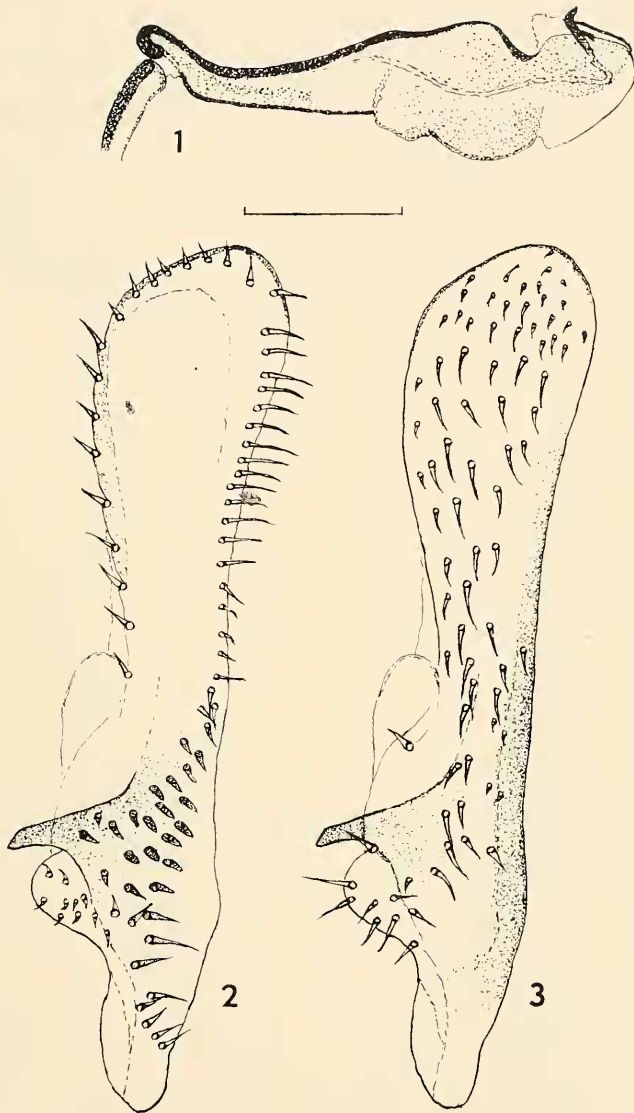
Figs 4-6

Types. Holotype ♂ on slide labelled Beerwah, Qld, Forestry Scientific Area, 16 ix 1983, K. M. Moore, *E. conglomerata*, round lerps. Paratypes, 1 ♀, 1 nymph in 90% ethanol in tube with same label data.

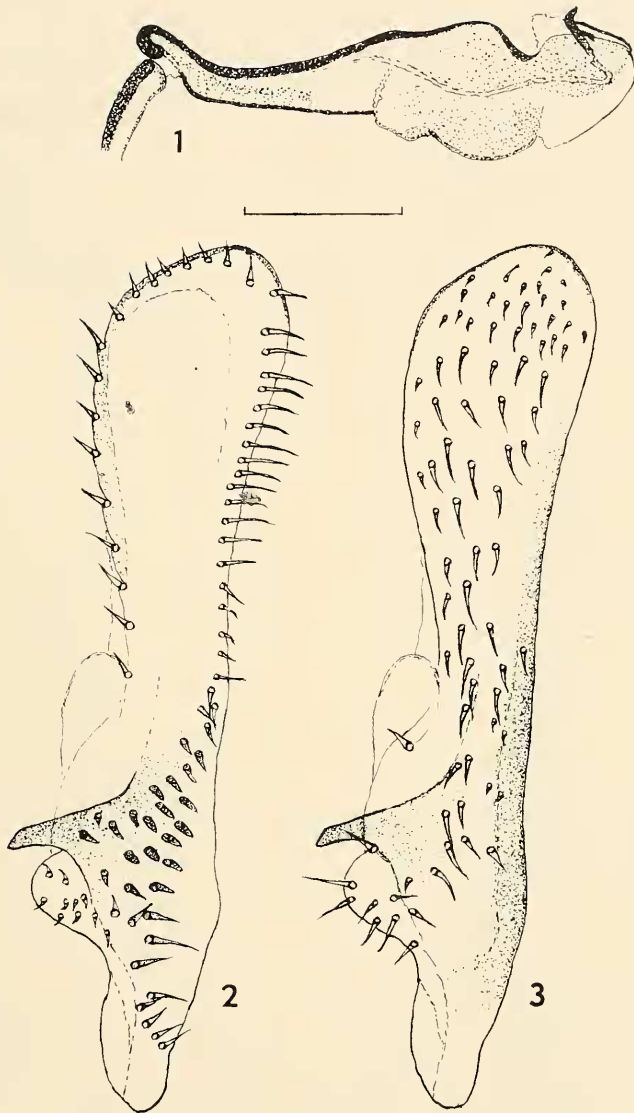
General colour: male pale yellow with few dark markings; females orange with dark markings more extensive, abdomen suffused red. Claspers and aedeagus as in Figs 4-6. Length of aedeagus 0.248mm. (1 specimen). Lerps round.

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Etymology. The Latinized adjective indicates the type of environment known locally as 'wallum', with the suffix *-aris* = pertaining to.



Figs 1-3. *Glycaspis surculina* sp.n. 1, aedeagus; 2, clasper, internal face; 3, clasper, external face. Scale line 0.1mm.

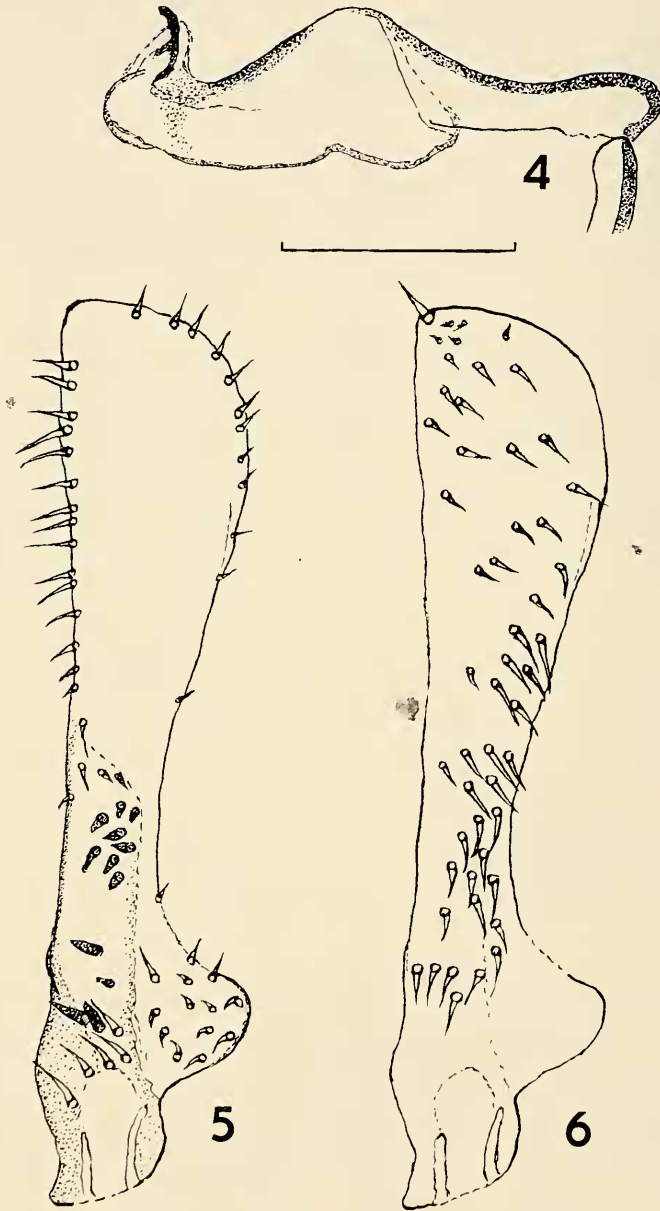


Figs 1-3. *Glycaspis surculina* sp.n. 1, aedeagus; 2, clasper, internal face; 3, clasper, external face. Scale line 0.1mm.

Glycaspis (Glycaspis) inusitata sp.n.

Figs 7-9

Types. Holotype ♂ on slide labelled Warwick, Qld, Palgrave State Forest 444, 19 ix 1983, K. M. Moore, *E. bakeri*. Paratypes, 3 slides of single wholemount males; 1 ♂, 5 ♀ ♀, 2 nymphs, several lerps, in 90% ethanol in tube. All with same label data.

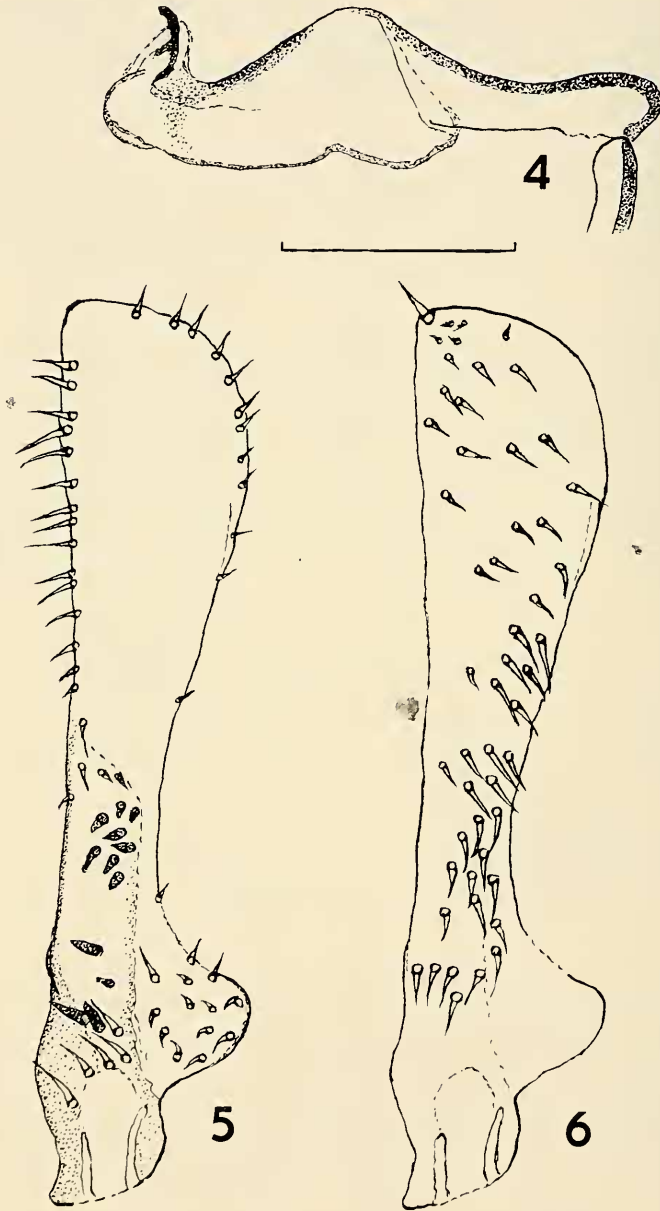


Figs 4-6. *Glycaspis wallumaris* sp.n. 4, aedeagus; 5, clasper, internal face; 6, clasper, external face. Scale line 0.1mm.

Glycaspis (Glycaspis) inusitata sp.n.

Figs 7-9

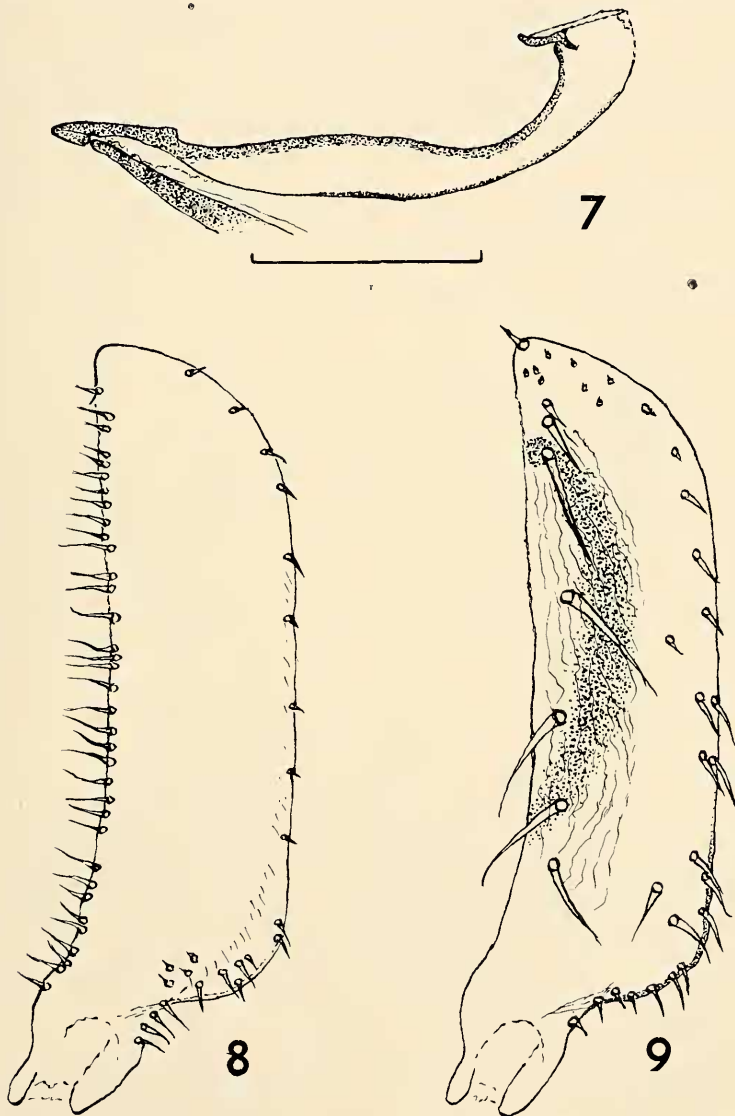
Types. Holotype ♂ on slide labelled Warwick, Qld, Palgrave State Forest 444, 19 ix 1983, K. M. Moore, *E. bakeri*. Paratypes, 3 slides of single wholemount males; 1 ♂, 5 ♀ ♀, 2 nymphs, several lerps, in 90% ethanol in tube. All with same label data.



Figs 4-6. *Glycaspis wallumaris* sp.n. 4, aedeagus; 5, clasper, internal face; 6, clasper, external face. Scale line 0.1mm.

General colour: males cream with extensive dark markings and red suffusion; females with dark markings and red suffusion more extensive and intense. Claspers and aedeagus as in Figs 7-9. Length of aedeagus 0.248-0.264mm (4 specimens). Antennal rhinaria on segments 4, 5 (atrophied), 6, 8 and 9. Hindwing vein Cu_1 as Group (i) (Moore, 1970a, 1983). Leps square to rectangular.

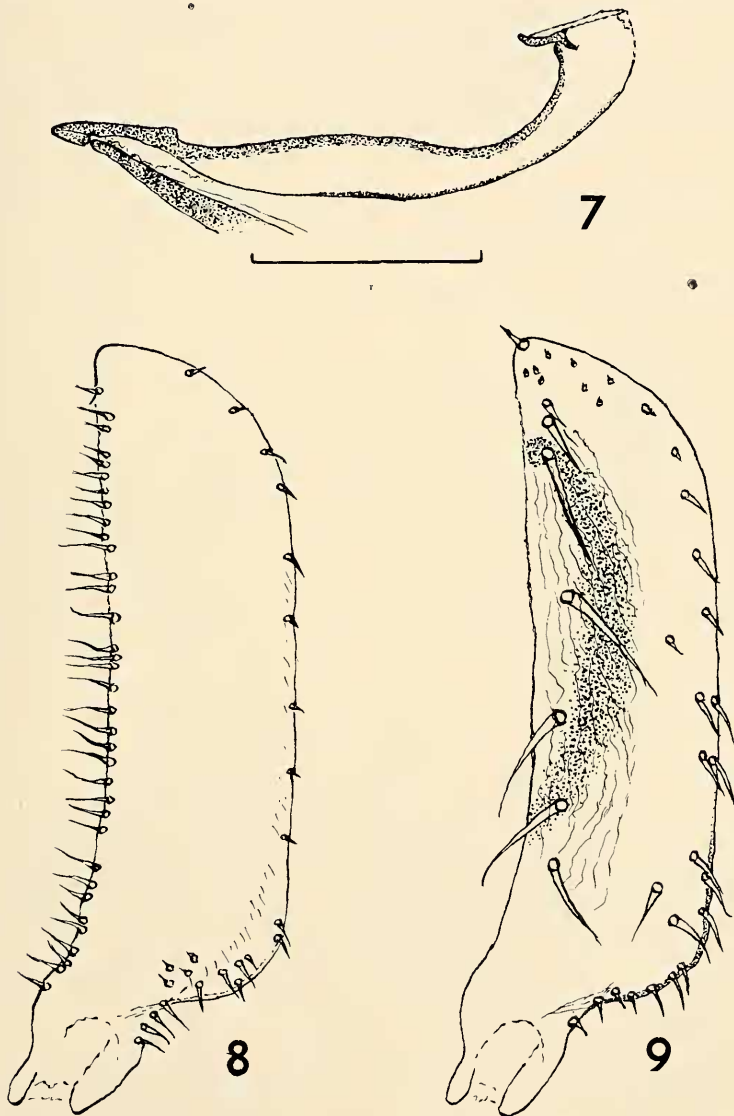
Notes. The phyletic position of *G. inusitata* is in the *deirada* group complex (Moore, 1970a: 306, 1970b: 351, 1983: 180, 182). The species appears to be nearest to *G. deirada* Moore but differs from it in the following characters: the dorsal edge of the aedeagus indented



Figs 7-9. *Glycaspis inusitata* sp.n. 7, aedeagus; 8, clasper, internal face; 9, clasper, external face. Scale line 0.1mm.

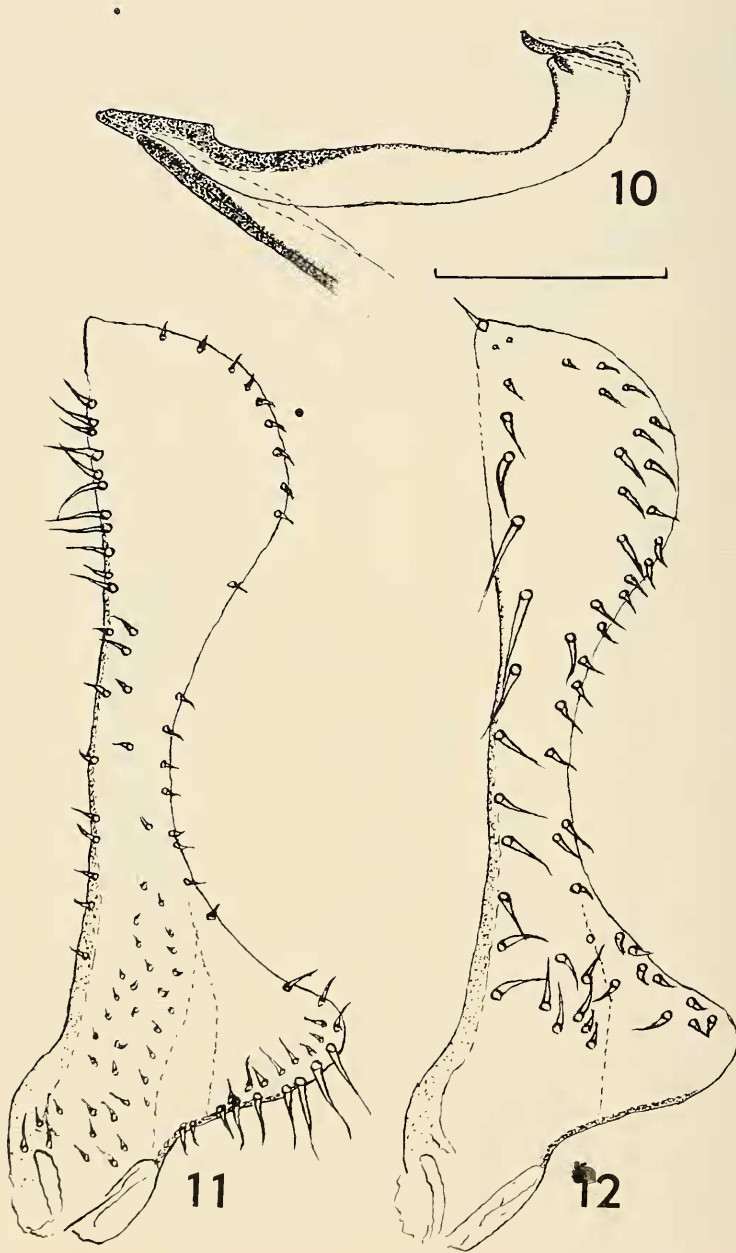
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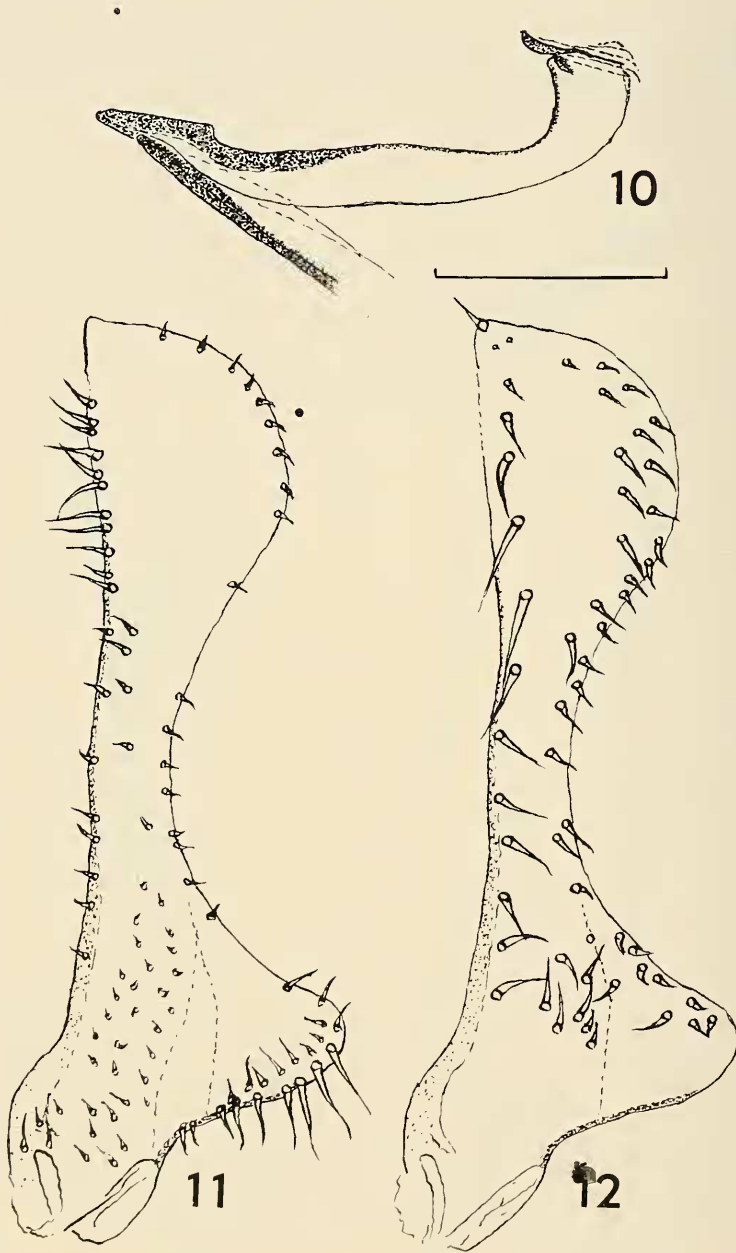
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contiguous to both the proximal ridge and the distal neck, neck incurved, proximal ridge more nearly horizontal, ventral edge more heavily sclerotized from neck to half the distance proximally; claspers with anterior and posterior edges more nearly parallel and vertical, dark median area less extensive and not extending to base or posterior edge,



Figs 10-12. *Glycaspis riguiensis* sp.n. 10, aedeagus; 11, clasper, internal face; 12, clasper, external face. Scale line 0.1mm.

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Figs 10-12. *Glycaspis riguiensis* sp.n. 10, aedeagus; 11, clasper, internal face; 12, clasper, external face. Scale line 0.1mm.

antero-basal curve more acute with narrower sclerotized area not extending to base, internal basal setae absent and the position of those near the antero-basal curve quite distinct.

There were some round lerp on *E. bakeri*, as has previously been observed on some of the hosts recorded for species in the *deirada* complex (Moore, 1970a: 306-7, 1983: 182 (group 11)).

Etymology. The specific name is formed from the Latin prefix *in-* = not, and *usitata* = usual (= extraordinary), referring to the first observed occurrence of square lerp in this genus.

Glycaspis (Glycaspis) riguensis sp.n.

Figs 10-12

Types. Holotype ♂ on slide labelled Burncluth, c. 20 km NE Chinchilla, Qld, 13 ix 1983, K. M. Moore, *E. argophloia*. Paratypes, 4 slides of single wholemount males; about 7 ♂ ♂, 25 ♀ ♀, lerp, in 90% ethanol in tube. All with same label data.

General colour: males pale yellow sometimes with light red suffusion and few dark markings; females darker yellow with more intense and extensive dark marks and red suffusion.

Claspers and aedeagus as in Figs 10-12. Length of aedeagus 0.228-0.248mm (5 specimens). Lerp round to oval.

Notes. The phyletic position of *G. riguensis* is in the *anomala* group. The species appears to be nearest to *G. mesicola* Moore from which it differs in the following characters: the aedeagus is more curved distally and with ventral edge straighter; posterior edge of claspers from base to two thirds its length more heavily sclerotized and with distal one third more upright, median anterior edge curved in a more or less even arc, antero-basal 'foot' thus more depressed with ventral edge more heavily sclerotized and with an additional line of internal setae extending downwards from apex.

Etymology. The Latin adjective *riguus* = well watered, with the suffix *-ensis* = pertaining to or belonging to; referring to the flat poorly-drained locality with lagoons and much surface water.

ACKNOWLEDGEMENTS

The Committee of the Science and Industry Endowment Fund, CSIRO, supported this work with a monetary grant for which I am most grateful.

The following are also thanked for much assistance with locality data and directions enabling location of the eucalypt species: Dr R. W. Johnson, Director, and W. J. F. McDonald, of the Queensland Herbarium, Brisbane; Senior Forest Technician D. N. Goschnick, Beerwah; D. J. West, Forest Research Officer, Dalby; Mrs J. Harslett, Amiens, Qld; P. V. Holzworth, District Forester, Warwick; G. N. Baur, Chief Sylviculturist, Forestry Commission of N.S.W., Sydney.

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